SON-1159/REISSUE

REISSUE APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application for)
)
U.S. Patent No. 6,016,028 issued January 18, 2000)
)
Inventors: YUKINOBU IGUCHI ET AL.)
) Attn: Applications Branch
Reissue No. (Unassigned))
)
Title: GLASS BULB FOR COLOR PICTURE)
TUBE AND THE SAME TUBE)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Box REISSUE
Washington, D.C. 20231

Sir:

Prior to the initial examination, please amend the above-referenced reissue application as follows:

IN THE SPECIFICATION:

Please amend the paragraph in the specification starting at column 4, line 17, as follows:

-- FIG. 1 is a schematic diagram of a partly cutout color picture tube of the embodiment 1 of the present invention. The color picture tube of the present invention is provided with a glass bulb 1 in which the external surface 10A of the effective display area of the face plate 10 is substantially flat and a color selection mechanism in the form of a mask 20 which is provided, within the glass bulb 1,

opposed to the internal surface 10B of the face plate 10. [and is having the] The color selection mask 20 has a curvature projected toward the face plate 10. In regard to the face plate 10 of the embodiment 1, the external surface 10A of the effective display area is substantially flat and thickness T of the peripheral part in the horizontal direction of the effective display area of the faceplate is larger than that T_o of the central area of the effective display area. In other words, the internal surface 10B of the face plate 10 of the glass bulb 1 has the curvature recessed toward the color selection mask 20. The curvature of the color selection mask 20 is larger than the curvature of the internal surface 10B of the face plate 10. --

Please amend the paragraph in the specification starting at column 4, line 35, as follows:

-- When it is assumed that the glass bulb 1 is held horizontally and the face plate 10 is cut at the horizontal line, the curve depicted by the internal surface 10B of the face plate 10 may be an arc or a curve expressed by a polynomial. When such curve is expressed by an arc, an inverse number of the radius of arc corresponds to the curvature of the internal surface 10B of the face plate 10. Moreover, when such curve is expressed by a polynomial, an inverse number of the radius of the arc connecting the three points of the peripheral area in the

horizontal direction of the effective display area of the face plate 10 and the center of the effective display area is defined as the curvature of the internal surface 10B of the face plate 10. In the color picture tube of the preferred embodiment 1, since the curvature of the color selection mask 20 is larger than the curvature of the internal surface 10B of the face plate 10, the distance up to the color selection mask from the peripheral area in the horizontal direction of the effective display area of the face plate 10 is longer than that up to the color selection mask from the center of the effective display area of face plate 10 [is longer than that up to the color selection mask]. However, in the color picture tube of the preferred embodiment 1, color purity, particularly, in the peripheral area of the television color picture tube can be remarkably improved by widening the pitch between the apertures 21, 21 (refer [refere] to FIG. 4B) provided in the color selection mask 20 as it goes to the peripheral area in the horizontal direction of the face plate 10.

Please amend the paragraph in the specification starting at column 4, line 62, as follows:

-- The face plate 10 is bonded with a funnel 11 with a glass bonding agent. The face plate 10 near the funnel 11 is wound by a tension band 12 to enhance the strength of the glass bulb 1. As the schematic perspective view of FIG. 4A shows,

the aperture grill type color selection mask 20 includes a plurality of fine metal leads which are [is] attached to and extend over the frame member 22 by the resistance welding method or laser welding method under the condition that the tension is applied in the vertical direction. A plurality of apertures 21 are formed between the fine metal leads with a pitch between the apertures as shown in Fig. 4B. The frame member 22 is removably attached to the face plate 10 with a fitting device 23 formed of spring. The other structure of the color picture tube is similar to that of the existing color picture tube and detail description will be omitted here. --

IN THE CLAIMS:

Please amend claims 6 and 9 as follows:

6. (Amended) A cathode ray tube according to claim 1, wherein the color selection mechanism is formed of a frame and a plurality of fine metal [fine] leads extended over the frame and the pitch of apertures between said fine metal leads is gradually widened toward a peripheral area in a horizontal direction of the face plate.

9. (Amended) A cathode ray tube according to claim 7, wherein the color selection mechanism is formed of a frame and a plurality of fine metal [fine] leads

extended over the frame and the pitch of apertures between said fine metal leads is gradually widened toward a peripheral area in a horizontal direction of the face plate.

Please add new claims 10 to 16 as follows:

10. (Newly added) A cathode ray tube comprising:

a glass bulb in which an external surface of an effective display area of a face plate is substantially flat and an internal surface of the effective display area of the face plate has a recessed curvature; and

a color selection mask having a curvature projected toward the face plate provided opposed to the internal surface of the face plate within said glass bulb, said projected curvature of the color selection mask being larger than the recessed curvature of the internal surface of the face plate.

11. (Newly added) A cathode ray tube according to claim 10, wherein said color selection mask has a plurality of apertures with a pitch between adjacent apertures being gradually widened toward a peripheral area in a horizontal direction of the face plate.

12. (Newly added) A cathode ray tube comprising:

a glass bulb in which an external surface of an effective display area of a face plate is substantially flat and a thickness of the effective display area of the face plate is substantially uniform; and

a color selection mask having a curvature projected toward the face plate provided opposed to an internal surface of the face plate within said glass bulb.

13. (Newly added) A cathode ray tube according to claim 12, wherein said color selection mask has a plurality of apertures, and a pitch between adjacent apertures is gradually widened toward a peripheral area in a horizontal direction of the face plate.

14. (Newly added) A cathode ray tube comprising:

a glass bulb in which an external surface of an effective display area of a face plate is substantially flat and an internal surface of the effective display area of the face plate has a recessed curvature, and a thickness T of a peripheral area in a horizontal direction of the effective display area of the face plate is selected as $T = 1.2T_o$ to $1.3T_o$, where T_o is a thickness of a center of the effective display area; and

a color selection mask having a curvature projected toward the face plate provided opposed to the internal surface of the face plate within said glass bulb.

15. (Newly added) A cathode ray tube according to claim 14, wherein the projected curvature of the color selection mask is larger than the recessed curvature of the internal surface of the face plate.

16. (Newly added) A cathode ray tube according to claim 15, wherein said color selection mask has a plurality of apertures, and a pitch between adjacent apertures is gradually widened toward the peripheral area in the horizontal direction of the face plate.

STATEMENT OF STATUS OF CLAIMS AND SUPPORT FOR CHANGES TO CLAIMS AND SPECIFICATION

The following statement of the status and support for all changes to the specification and claims in this reissue application is provided to comply with 37 CFR 1.173(c) and to facilitate the Examiner's review of this reissue application.

Claims 6 and 9 have been amended, and claims 10 to 16 have been added by this Preliminary Amendment. Claims 1 to 16 are pending for the Examiner's consideration.

Claims 6 and 9 have been amended to change the phrase "metal fine leads" in the third line of each claim into --fine metal leads--; and to change the phrase "pitch of said fine metal leads" in the fourth line of each claim into --pitch of apertures between said fine metal leads." These changes were made to make the phrase "fine metal leads" consistent throughout the claims, and to make the claims correspond with the description in the specification wherein the pitch of the apertures is described, rather than the pitch of the fine metal leads. Support for these changes is found in original claims 6 and 9, in Fig. 4B of the drawings, and in column 4, lines 55 to 61, of the '028 patent.

Independent claim 10 corresponds generally to claim 1 of the '028 patent and is believed to find sufficient support therein. Claim 10 differs from claim 1 by changing the phrase "a peripheral area in the horizontal direction of the effective display area of the face plate is thicker than a center of the effective display area" into --an internal surface of the effective

display area of the face plate has a recessed curvature--. Support for this change is found in the disclosure of the '028 patent at column 4, lines 30 to 32. Claim 10 also differs from claim 1 by using the phrase --color selection mask-- instead of "color selection mechanism." Support for this terminology is found in the disclosure of the '028 patent at column 4, lines 22, 32, 33, 49, 59, etc. Claim 10 also recites that the projected curvature of the color selection mask is --larger than the concave curvature of the internal surface of the face plate--. This limitation corresponds to a similar limitation in claim 3 of the '028 patent and finds support in column 4, lines 32 to 34, of the disclosure.

Claims 11, 13 and 16 recite that the color selection mask has a plurality of apertures with a pitch between adjacent apertures being gradually widened toward a peripheral area in a horizontal direction of the face plate. This limitation finds support in the '028 patent at column 4, lines 55 to 61, and column 5, lines 36 to 43.

Independent claim 12 corresponds generally to claim 7 of the '028 patent and is believed to find sufficient support therein. Claim 12 differs from claim 7 by using the phrase --color selection mask-- instead of "color selection mechanism." Support for this terminology is found in the disclosure of the '028 patent at column 4, lines 22, 32, 33, 49, 59, etc.

Independent claim 14 corresponds generally to new claim 10 and finds support in the disclosure of the '028 patent for at least the same reasons described above regarding claim 10. Claim 14 differs from claim 10 by reciting the following additional feature:

> a thickness T of a peripheral area in a horizontal direction of the effective display area of the face plate is selected as $T = 1.2T_o$ to $1.3T_o$, where T_o is a thickness of a center of the effective display area;

Support for this claimed feature is found in the disclosure of the '028 patent at column 2, lines 33 to 37, and at column 5, lines 25 to 28.

Claim 15 recites the feature that the projected curvature of the color selection mask is larger than the recessed curvature of the internal surface of the face plate. This feature is also recited in claims 3 and 10, and finds support in the disclosure of the '028 patent at column 4, lines 32 to 34, and lines 47 to 50.

The specification has been amended in the paragraph starting at column 4, line 17, to provide antecedent basis in the text for the claimed "color selection mechanism," as recited in claims 1 to 4, 6, 7 and 9 of the '028 patent. The original disclosure of the '028 patent used the term "mask" instead of "mechanism" throughout the specification to refer to the color selection mechanism 20. This amendment to the specification will clarify that the terms "mechanism" and "mask" refer to the same element 20 in the present invention, and will correct a potential lack of antecedent basis problem regarding the same.

The specification has also been amended in the paragraph starting at column 4, line 35, to clarify lines 50 to 54 as follows:

> the distance up to the color selection mask from the peripheral area in the horizontal direction of the effective display area of the face plate 10 is longer than that up to the color selection mask from the center of the

> effective display area of face plate 10 [is longer than that up to the color selection mask].

This change was necessary to more accurately describe the structure shown in Fig. 1 of the drawings. As amended, this portion of the specification describes the relative distances between the color selection mask 20 and the effective display area of the face plate 10 at both the center and the peripheral area of the face plate 10. Support for this amendment is found in column 4, lines 32 to 34, 48 to 54, and in claim 3 of the '028 patent.

The specification was amended at column 4, line 58 to correct the misspelling of the term "refer."

The specification was also amended at column 4, line 65, through column 5, line 2, as follows:

> As the schematic perspective view of FIG. 4A shows, the aperture grill type color selection mask 20 <u>includes a plurality of fine metal leads which are</u> [is] attached to <u>and extend over</u> the frame member 22 by the resistance welding method or laser welding method under the condition that the tension is applied in the vertical direction. <u>A plurality of apertures 21 are formed between the fine metal leads with a pitch between the apertures as shown in Fig. 4B.</u>

This amendment to the specification was made to provide antecedent basis for the claim language in claims 6 and 9 of the '028 patent. Support for these changes is found in original claims 6 and 9, as well as in Figs. 4A and 4B of the drawings, and column 4, lines 57 to 61, of the '028 patent.

REMARKS

This Preliminary Amendment is being presented with the original filing of this reissue application to amend the specification and add additional claims to correct errors discovered in the Applicants' '028 patent. Entry of these amendments and consideration thereof during the examination of this reissue application are respectfully requested.

An Information Disclosure Statement is being filed herewith to bring to the Examiner's attention several additional documents which may be relevant to this reissue application. The Examiner is requested to consider each of these documents during the prosecution of this reissue application.

If the Examiner has any comments or suggestions that could place this application into even better form, the Examiner is encouraged to contact the Applicants' undersigned representative at the number listed below.

Respectfully submitted,

Date: **January 15, 2002**

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